

AMENDMENTS

This listing of claims replaces all previous versions or listings of claims in this application.

Claims 1-38. (Canceled)

Claim 39. (Currently Amended) A material prepared by the sol-gel route, comprising:

- (a) at least one metal alkoxide selected from the group consisting of zirconium, titanium and aluminum alkoxides;
- (b) at least one organic UV-A sunscreen agent having a maximum absorption wavelength of less than 370 nm;
- (c) at least one functionalized organic polymer, or at least one functionalized silicone polymer;
- (d) at least one solvent; and
- (e) an amount of water sufficient for at least partial hydrolysis of the metal alkoxide and its condensation; ~~and~~

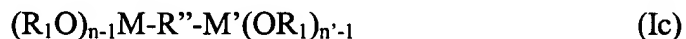
wherein said material has a maximum absorption wavelength of from 370 to 400 nm.

Claim 40. (Cancelled).

Claim 41. (Previously Presented) The material of Claim 39, wherein the amount of water is sufficient for complete hydrolysis of the metal alkoxide.

Claim 42. (Previously Presented) The material according to Claim 39, wherein the metal alkoxide is selected from the group consisting of:

(1) metalloorganic compounds corresponding to one of the following formulae:



wherein M and M' represent, independently of one another, a zirconium, titanium or aluminum atom, n and n' denote the respective valencies of the metal atoms represented by M and M',

R₁ represents a saturated or unsaturated, linear or branched C₁₋₃₀ hydrocarbonaceous group,

R and R' represent, independently of one another, a saturated or unsaturated, linear, branched or cyclic C₁₋₃₀ hydrocarbonaceous group,

R'' represents a saturated or unsaturated, linear, branched or cyclic divalent C₁₋₃₀, hydrocarbonaceous group; and

(2) complexed or chelated metalloorganic compounds corresponding to one of the following formulae:



wherein: M, M', n, n', R₁, R, R' and R'' are as defined above;

X represents a monodentate or polydentate ligand or a chelating group comprising a nitrogen atom, a phosphorus atom, a sulfur atom or an oxygen atom which can be covalently bonded to a group capable of reacting with said functionalized organic polymer or said functionalized silicone polymer;

x represents the number of X ligands; and

b represents the number of bonding atoms of the X ligand.

Claim 43. (Previously Presented) The material of Claim 42, wherein R₁ represents a saturated or unsaturated, linear or branched C₁₋₆ hydrocarbonaceous group.

Claim 44. (Withdrawn) The material of Claim 42, wherein R₁ represents a saturated or unsaturated, linear or branched hydrocarbonaceous group comprising a heteroatom.

Claim 45. (Withdrawn) The material of Claim 44, wherein the heteroatom is selected from the group consisting of nitrogen, sulfur, oxygen and phosphorus.

Claim 46. (Withdrawn) The material of Claim 42, wherein R and R' are independently C₂₋₂₀ hydrocarbonaceous group.

Claim 47. (Withdrawn) The material of Claim 42, wherein R and R', independently comprise a heteroatom selected from the group consisting of nitrogen, phosphorus, sulfur and oxygen.

Claim 48. (Withdrawn) The material of Claim 42, wherein R and R', are independently selected from the group consisting of linear and branched alkyls, cycloalkyls and aryls.

Claim 49. (Withdrawn) The material of Claim 42, wherein R and R' are independently substituted by groups capable of reacting with the organic or silicone polymer.

Claim 50. (Withdrawn) The material of Claim 42, wherein R and R' independently comprise a cosmetically or dermatologically active group.

Claim 51. (Withdrawn) The material of Claim 42, wherein R" comprises a heteroatom selected from the group consisting of nitrogen, phosphorus, sulfur and oxygen.

Claim 52. (Withdrawn) The material of Claim 42, wherein R" is selected from the group consisting of linear and branched, cycloalkylenes, and arylenes.

Claim 53. (Withdrawn) The material of Claim 42, wherein R" is substituted by a group capable of reacting with the organic or silicone polymer.

Claim 54. (Withdrawn) The material of Claim 42, wherein R" comprises a cosmetically or dermatologically active group.

Claim 55. (Withdrawn) The material of Claim 42, wherein X comprises a cosmetically or dermatologically active group.

Claim 56. (Withdrawn) The material according to Claim 42, wherein at least one of R, R', R'' and/ X comprises a group capable of reacting with the functionalized organic polymer or the functionalized silicone polymer (c) selected from the group consisting of halogen atoms, hydroxyl, acyl, carboxyl, ester, thiol, alkylthioalkyl, epoxy, isocyanate, thiocyanate, ureido, thioureido, urethane, imidazolo, morpholino, pyrrolo, a group comprising ethylenic unsaturation selected from the group consisting of (meth)acrylic and vinyl groups, halogenated groups, hydroxylated and carboxylated groups, phosphonic, phosphonate, phosphate, pyrophosphate, phosphonium, sulfonate, amine, quaternary ammonium, amide, amino acid and polypeptide groups, the acetic acid, acetoacetate (ACAC) or ethyl acetoacetate group, or a group deriving from EDTA and its derivatives.

Claim 57. (Withdrawn) The material of Claim 42, wherein the monodentate or polydentate ligand X is selected from the group consisting of sulfuric acids, sulfonic acids, phosphonic acids, phosphoric acids, carboxylic acids, ketones, β -diketones, esters, β -ketoesters, amines, β -ketoamines, amino acids, α - or β -hydroxy acids, ethers and polyethers, imines, optionally hydroxylated amides, azo compounds, thiols, ureas, thioether sulfoxides, thioether sulfones, optionally cyclic thioethers, di(thioethers), monoalcohols and polyols, dextrin and its derivatives, and thiazolidines.

Claim 58. (Withdrawn) The material of Claim 57, wherein the monodentate or polydentate ligand X is selected from the group consisting of α - and β -hydroxylated amino acids, and derivatives thereof.

Claim 59. (Previously Presented) The material of Claim 39 wherein the metal alkoxide is selected from the group consisting of tetra-n-propyl zirconate, tetraisopropyl zirconate, titanium tetraisopropoxide and aluminum tri-sec-butoxide.

Claim 60. (Previously Presented) The material of Claim 39, wherein the metal alkoxide is present in an amount ranging from 0.1% by weight to 99% by weight, with respect to the total weight of the material.

Claim 61. (Previously Presented) The material of Claim 39, wherein the metal alkoxide is present in an amount ranging from 0.5% by weight to 80% by weight, with respect to the total weight of the material.

Claim 62. (Previously Presented) The material of Claim 39, wherein the organic UV-A sunscreen agent is selected from the group consisting of:

- dibenzoylmethanes,
- camphors,
- benzimidazoles,
- benzoxazoles,
- benzophenones,
- silanes or polyorganosiloxanes comprising benzophenone group(s),
- anthranilates, and
- their mixtures.

Claim 63. (Previously Presented) The material of Claim 62, wherein the organic UV-A sunscreen agent is selected from the group consisting of:

- 2-methyldibenzoylmethane,
- 4-methyldibenzoylmethane,
- 4-isopropyldibenzoylmethane,
- 4-tert-butyldibenzoylmethane,
- 2,4-dimethyldibenzoylmethane,
- 2,5-dimethyldibenzoylmethane,
- 4,4'-diisopropyldibenzoylmethane,
- 4,4'-dimethoxydibenzoylmethane,
- 4-tert-butyl-4'-methoxydibenzoylmethane,
- 2-methyl-5-isopropyl-4'-methoxydibenzoylmethane,
- 2-methyl-5-tert-butyl-4'-methoxydibenzoylmethane,
- 2,4-dimethyl-4'-methoxydibenzoylmethane, and
- 2,6-dimethyl-4-tert-butyl-4'-methoxydibenzoylmethane.

Claim 64. (Previously Presented) The material of Claim 63, wherein the organic UV-A sunscreen agent is 4-tert-butyl-4'-methoxydibenzoylmethane.

Claim 65. (Previously Presented) The material of Claim 39, wherein the organic UV-A sunscreen agent is present in an amount ranging from 0.1% by weight to 60% by weight, with respect to the total weight of the material.

Claim 66. (Previously Presented) The material of Claim 65, wherein the organic UV-A sunscreen agent is present in an amount ranging from 0.1% to 30% by weight, with respect to the total weight of the material.

Claim 67. (Previously Presented) The material of Claim 39, wherein the functionalized organic or silicone polymer is a homopolymer or random, block and/or graft copolymer selected from the group consisting of:

- (a) alkyloxazoline homopolymers and copolymers;
- (b) homopolymers and copolymers of (meth)acrylic acid, of crotonic acid, of maleic acid, of itaconic acid, of styrenesulfonic acid, of 2-(acrylamido)methylpropanesulfonic acid, of 2-sulfoethyl methacrylate, of vinylsulfonic acid and/or of vinylphosphonic acid;
- (c) homopolymers of acrylic or methacrylic esters or amides and their copolymers with comonomers chosen from unsaturated carboxylic acids, sulfonic acids, phosphonic acids, vinyl esters and ethers, olefins, styrene, substituted styrenes, fluoro- and perfluoroolefins, perfluoroalkyl (meth)acrylates, fluorovinyl compounds and unsaturated organosilanes, organosiloxanes or organopolysiloxanes;
- (d) vinyl alcohol homopolymers and copolymers;
- (e) homopolymers of vinyl and/or allyl and/or methallyl esters or amides and their copolymers with comonomers chosen from unsaturated carboxylic acids, sulfonic acids, phosphonic acids, vinyl esters and ethers, olefins, styrene, substituted styrenes, fluoro- and perfluoroolefins, perfluoroalkyl (meth)acrylates, fluorovinyl compounds, and unsaturated organosilanes, organosiloxanes or organopolysiloxanes;
- (f) polyethers;
- (g) polyesters;

- (h) homopolymers and copolymers of olefins or of cycloolefins;
- (i) polyamides and polyesteramides;
- (j) polyurethanes and polyureas which can comprise polyether, polyester and/or polyorganosiloxane blocks;
- (k) fluoropolymers;
- (l) natural polymers and modified natural polymers;
- (m) polyorganosiloxanes;
- (n) polyorganophosphazenes;
- (o) polysilanes, polycarbosilanes or polysilazanes; and
- (p) mixtures of these polymers.

Claim 68. (Previously Presented) The material of Claim 39, wherein the functionalized organic or silicone polymer is selected from the group consisting of poly(2-ethyl-2-oxazoline), a terpolymer of vinyl acetate, of vinyl 4-tent-butylbenzoate and of crotonic acid (62/25/10), polydimethylsiloxane-diols, poly(ethylene glycol)s, poly(aryl alcohol) and poly(vinylpyrrolidone).

Claim 69. (Previously Presented) The material of Claim 68, wherein the functionalized organic or silicone polymer is a polydimethylsiloxane-diol.

Claim 70. (Previously Presented) The material of Claim 39, wherein the functionalized organic or silicone polymer is present in an amount ranging from 0.1% by weight to 99% by weight, with respect to the total weight of the material.

Claim 71. (Previously Presented) The material of Claim 70, wherein the functionalized organic or silicone polymer is present in an amount ranging from 0.5% to 80% by weight, with respect to the total weight of the material.

Claim 72. (Previously Presented) The material of Claim 39, wherein the solvent is an alcohol.

Claim 73. (Previously Presented) The material of Claim 72, wherein the alcohol is a linear or branched lower alcohol.

Claim 74. (Previously Presented) The material of Claim 73, wherein the alcohol is ethanol.

Claim 75. (Previously Presented) A cosmetic and/or dermatological composition comprising an effective amount of the material of Claim 39 in a cosmetically and/or dermatologically acceptable vehicle.

Claim 76. (Previously Presented) The cosmetic and/or dermatological composition of Claim 75, wherein the material is in the form of particles obtained by drying and milling.

Claim 77. (Previously Presented) The cosmetic and/or dermatological composition of Claim 75, wherein the material is present in an amount from 1% by weight to 99% by weight with respect to the total weight of the cosmetic and/or dermatological composition.

Claim 78. (Previously Presented) The cosmetic and/or dermatological composition of Claim 77, wherein the material is present in an amount from 5% by weight to 60% by weight with respect to the total weight of the cosmetic and/or dermatological composition.

Claim 79. (Previously Presented) The cosmetic and/or dermatological composition of Claim 75, wherein the mean size of particles obtained by drying and milling the material is from 0.1 μm to 20 μm .

Claim 80. (Previously Presented) The cosmetic and/or dermatological composition of Claim 79, wherein the mean size of particles obtained by drying and milling the material is from 0.1 μm to 10 μm .

Claim 81. (Previously Presented) The cosmetic and/or dermatological composition of Claim 75, further comprising an additive selected from the group consisting of sunscreen agents other than organic UV-A sunscreen agents, agents for the artificial tanning and/or browning of the skin, pigments, fatty substances, organic solvents, thickeners, softeners and antioxidants.

Claim 82. (Previously Presented) A process for shifting a maximum absorption wavelength of an organic UV-A sunscreen agent, having a maximum absorption wavelength of less than 370

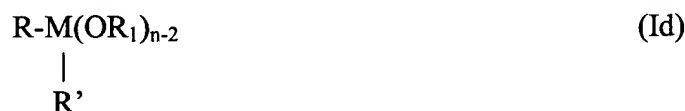
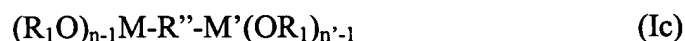
nm, into the range from 370 to 400 nm, wherein the process comprises combining the sunscreen agent with:

- (a) a sol comprising at least one functionalized organic polymer or at least one functionalized silicone polymer,
- (b) at least one metal alkoxide selected from zirconium, titanium and aluminum alkoxides,
- (c) at least one solvent, and
- (d) an amount of water sufficient for at least the partial hydrolysis of the metal alkoxide and its condensation.

Claim 83. (Previously Presented) The process of Claim 82, wherein the amount of water is sufficient for complete hydrolysis of the metal alkoxide.

Claim 84. (Previously Presented) The process according to Claim 82, wherein the metal alkoxide is selected from the group consisting of:

(1) metalloorganic compounds corresponding to one of the following formulae:



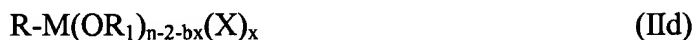
wherein M and M' represent, independently of one another, a zirconium, titanium or aluminum atom, n and n' denote the respective valencies of the metal atoms represented by M and M',

R₁ represents a saturated or unsaturated, linear or branched C₁₋₃₀ hydrocarbonaceous group,

R and R' represent, independently of one another, a saturated or unsaturated, linear, branched or cyclic C₁₋₃₀ hydrocarbonaceous group optionally

R'' represents a saturated or unsaturated, linear, branched or cyclic divalent C₁₋₃₀, hydrocarbonaceous group; and

(2) complexed or chelated metalloorganic compounds corresponding to one of the following formulae:



wherein: M, M', n, n', R₁, R, R' and R'' are as defined above;

X represents a monodentate or polydentate ligand or a chelating group comprising a nitrogen atom, a phosphorus atom, a sulfur atom or an oxygen atom which can be covalently bonded to a group capable of reacting with said functionalized organic polymer or said functionalized silicone polymer;

x represents the number of X ligands; and

b represents the number of bonding atoms of the X ligand.

Claim 85. (Previously Presented) The process of Claim 42, wherein R₁ represents a saturated or unsaturated, linear or branched C₁₋₆ hydrocarbonaceous group.

Claim 86. (Withdrawn) The process according to Claim 84, wherein at least one of R, R', R'' and/ X comprises a group capable of reacting with the functionalized organic polymer or the functionalized silicone polymer (c) selected from the group consisting of halogen atoms, hydroxyl, acyl, carboxyl, ester, thiol, alkylthioalkyl, epoxy, isocyanate, thiocyanate, ureido, thioureido, urethane, imidazolo, morpholino, pyrrolo, a group comprising ethylenic unsaturation selected from the group consisting of (meth)acrylic and vinyl groups, halogenated groups, hydroxylated and carboxylated groups, phosphonic, phosphonate, phosphate, pyrophosphate, phosphonium, sulfonate, amine, quaternary ammonium, amide, amino acid and polypeptide groups, the acetic acid, acetoacetate (ACAC) or ethyl acetoacetate group, or a group deriving from EDTA and its derivatives.

Claim 87. (Withdrawn) The process of Claim 84, wherein the monodentate or polydentate ligand X is selected from the group consisting of sulfuric acids, sulfonic acids, phosphonic acids, phosphoric acids, carboxylic acids, ketones, β -diketones, esters, β -ketoesters, amines, β -ketoamines, amino acids, α - or β -hydroxy acids, ethers and polyethers, imines, optionally hydroxylated amides, azo compounds, thiols, ureas, thioether sulfoxides, thioether sulfones, optionally cyclic thioethers, di(thioethers), monoalcohols and polyols, dextrin and its derivatives, and thiazolidines.

Claim 88. (Withdrawn) The process of Claim 84, wherein the monodentate or polydentate ligand X is selected from the group consisting of α - and β -hydroxylated amino acids, and derivatives thereof.

Claim 89. (Previously Presented) The process of Claim 82 wherein the metal alkoxide is selected from the group consisting of tetra-n-propyl zirconate, tetraisopropyl zirconate, titanium tetraisopropoxide and aluminum tri-sec-butoxide.

Claim 90. (Previously Presented) The process of Claim 82, wherein the organic UV-A sunscreen agent is selected from the group consisting of:

- dibenzoylmethanes,
- camphors,
- benzimidazoles,
- benzoxazoles,
- benzophenones,
- silanes or polyorganosiloxanes comprising benzophenone group(s),
- anthranilates, and
- their mixtures.

Claim 91. (Previously Presented) The process of Claim 90, wherein the organic UV-A sunscreen agent is selected from the group consisting of:

- 2-methyldibenzoylmethane,
- 4-methyldibenzoylmethane,

4-isopropylidibenzoylmethane,
4-tert-butylidibenzoylmethane,
2,4-dimethyldibenzoylmethane,
2,5-dimethyldibenzoylmethane,
4,4'-diisopropylidibenzoylmethane,
4,4'-dimethoxydibenzoylmethane,
4-tert-butyl-4'-methoxydibenzoylmethane,
2-methyl-5-isopropyl-4'-methoxydibenzoylmethane,
2-methyl-5-tert-butyl-4'-methoxydibenzoylmethane,
2,4-dimethyl-4'-methoxydibenzoylmethane, and
2,6-dimethyl-4-tert-butyl-4'-methoxydibenzoylmethane.

Claim 92. (Previously Presented) The process of Claim 91, wherein the organic UV-A sunscreen agent is 4-tert-butyl-4'-methoxydibenzoylmethane.

Claim 93. (Previously Presented) The process of Claim 82, wherein the functionalized organic or silicone polymer is a homopolymer or random, block and/or graft copolymer selected from the group consisting of:

- (a) alkyloxazoline homopolymers and copolymers;
- (b) homopolymers and copolymers of (meth)acrylic acid, of crotonic acid, of maleic acid, of itaconic acid, of styrenesulfonic acid, of 2-(acrylamido)methylpropanesulfonic acid, of 2-sulfoethyl methacrylate, of vinylsulfonic acid and/or of vinylphosphonic acid;
- (c) homopolymers of acrylic or methacrylic esters or amides and their copolymers with comonomers chosen from unsaturated carboxylic acids, sulfonic acids, phosphonic acids, vinyl esters and ethers, olefins, styrene, substituted styrenes, fluoro- and perfluoroolefins, perfluoroalkyl (meth)acrylates, fluorovinyl compounds and unsaturated organosilanes, organosiloxanes or organopolysiloxanes;
- (d) vinyl alcohol homopolymers and copolymers;
- (e) homopolymers of vinyl and/or allyl and/or methallyl esters or amides and their copolymers with comonomers chosen from unsaturated carboxylic acids, sulfonic acids, phosphonic

acids, vinyl esters and ethers, olefins, styrene, substituted styrenes, fluoro- and perfluoroolefins, perfluoroalkyl (meth)acrylates, fluorovinyl compounds, and unsaturated organosilanes, organosiloxanes or organopolysiloxanes;

- (f) polyethers;
- (g) polyesters;
- (h) homopolymers and copolymers of olefins or of cycloolefins;
- (i) polyamides and polyesteramides;
- (j) polyurethanes and polyureas which can comprise polyether, polyester and/or polyorganosiloxane blocks;
- (k) fluoropolymers;
- (l) natural polymers and modified natural polymers;
- (m) polyorganosiloxanes;
- (n) polyorganophosphazenes;
- (o) polysilanes, polycarbosilanes or polysilazanes; and
- (p) mixtures of these polymers.

Claim 94. (Previously Presented) The process of Claim 93, wherein the functionalized organic or silicone polymer is selected from the group consisting of poly(2-ethyl-2-oxazoline), a terpolymer of vinyl acetate, of vinyl 4-tert-butylbenzoate and of crotonic acid (62/25/10), polydimethylsiloxane-diols, poly(ethylene glycol)s, poly(aryl alcohol) and poly(vinylpyrrolidone).

Claim 95. (Previously Presented) The process of Claim 94, wherein the functionalized organic or silicone polymer is a polydimethylsiloxane-diol.

Claim 96. (Previously Presented) The process of Claim 82, wherein the solvent is an alcohol.

Claim 97. (Previously Presented) The material of Claim 96, wherein the alcohol is a linear or branched lower alcohol.

Claim 98. (Previously Presented) The process of Claim 97, wherein the alcohol is ethanol.